

**CLAIMS**

1. Use of o/w emulsions containing at least water, emulsifiers and an oil phase as a reaction medium for enzyme-catalyzed reactions, characterized in that the emulsion is produced by the PIT process and has a droplet size of 50 to 400 nm.

5 2. Use as claimed in claim 1, characterized in that the oil phase contains compounds selected from the group consisting of fatty acid alkyl esters and triglycerides.

3. Use claimed in claims 1 and/or 2, characterized in that emulsions containing fatty acid alkyl esters corresponding to formula (I):

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in which  $R^1$  is a  $C_{5-22}$  alkyl group and  $R^2$  is a  $C_{1-4}$  alkyl group, are used.

15 4. Use claimed in claims 1 to 3, characterized in that emulsions containing the oil phase in quantities of 10 to 80% by weight and preferably 20 to 50% by weight are used.

5. Use claimed in claims 1 to 4, characterized in that emulsions containing water in quantities of 20 to 90% by weight, preferably 30 to 80%  
20 by weight and more particularly 30 to 70% by weight are used.

6. Use claimed in claims 1 to 5, characterized in that emulsions containing hydrophilic emulsifiers with HLB values of 8 to 18 in combination with hydrophobic co-emulsifiers are used.

7. Use claimed in claims 1 to 6, characterized in that emulsions of  
25 which the emulsifier systems have quantity ratios between hydrophilic emulsifiers and co-emulsifiers of 10:90 to 90:10 are used.

8. Use claimed in claims 1 to 7, characterized in that emulsions containing emulsifiers in quantities of 1 to 25% by weight, preferably in quantities of 5 to 20% by weight and more particularly in quantities of 5 to

15% by weight are used.

9. Use claimed in claims 1 to 8, characterized in that the enzymes are interfacially active enzymes, more particularly hydrolases and/or acyl transferases.

5 10. Use claimed in claim 9, characterized in that the hydrolases are selected from the group consisting of esterases, phospholipases, lipases and lipases/acyl transferases.

11. Use claimed in claims 9 and 10, characterized in that the hydrolases are selected from the lipases and/or lipases/acyl transferases obtainable  
10 from organisms from the group consisting of *Alcaligenes*, *Aspergillus niger*, *Aspergillus oryzae*, *Aeromonas aerophila*, *Bacillus species*, *Candida albicans*, *Candida antarctica* (*Trichosporon oryzae*, *Pseudozyma antarctica*), *Candida antarctica*, *Candida cylindracea*, *Candida glabrata*, *Candida maltosa*, *Candida parapsilosis*, *Candida lipolytica*, *Candida tropicalis*,  
15 *Candida viswanathii*, *Chromobacterium viscosum*, *Fusarium solani*, *Geotrichum candidum*, *Issatchenkia orientalis* (*Candida krusei*), *Kluyveromyces marxianus* (*C. kefyr*, *C. pseudotropicalis*), *Mucor javanicus*, *Penicillium camemberti*, *Penicillium roqueforti*, *Pichia guilliermondii* (*Candida guilliermondii*), *Porcine pancreas*, *Pseudomonas cepacia*, *Pseudomonas fluorescens*,  
20 *Rhizomucor miehei*, *Rhizopus arrhizus*, *Rhizopus oryzae*, *Rhizopus niveus*, *Rhizopus javanicus* and *Thermomyces lanuginosus* and mixtures thereof.

12. Use claimed in claims 9 to 11, characterized in that the enzymes are used in a quantity of 0.001 to 20% by weight, expressed as pure enzyme or  
25 as enzyme preparation, based on the total quantity of oil phase used.

13. Use claimed in claims 1 to 12, characterized in that the enzyme-catalyzed reactions are hydrolysis, esterification or transesterification reactions.

14. Use claimed in claims 1 to 13, characterized in that cosmetic and/or  
30 pharmaceutical products and/or fine chemicals are produced in the

enzyme-catalyzed reaction.

15. Use claimed in claim 14, characterized in that the cosmetic and/or pharmaceutical products and/or the fine chemicals are carotinoids, sterol-containing oil components and/or vitamin E.

5 16. A process for the enzyme-catalyzed esterification, transesterification or hydrolysis of fatty acid alkyl esters and/or triglycerides, characterized in that o/w emulsions according to claims 1 to 8 are used as the reaction medium.

10 17. A process as claimed in claim 16, characterized in that cosmetic and/or pharmaceutical products and/or fine chemicals are produced in the enzyme-catalyzed reaction.

18. A process as claimed in claim 16 and/or 17, characterized in that the cosmetic and/or pharmaceutical products and/or the fine chemicals are carotinoids, sterol-containing oil components and/or vitamin E.

15 19. A process as claimed in any of claims 16 to 18, characterized in that enzymes according to claims 9 to 12 are used.